

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of Claims:**

Claim 1 (Currently Amended)      A water/air contact medium for use in an evaporative cooler, comprising

a fibrous material impregnated with a compound having a continuous phase comprising one or more amorphous non-chlorinated cationic polymers, for inhibiting deposition of one or more dissolved or particulate contaminants in the water onto the medium, wherein the one or more amorphous non-chlorinated cationic polymers comprise at least one cationic functional group, wherein the continuous phase has an overall cationic charge ~~the continuous phase further comprising an amorphous polymer or combination of one or more amorphous polymers, the continuous phase having comprising~~

- a nonpolar solubility parameter  $\delta_n$  within the range of about 6.5 to about 8.5 g,
- a polar solubility parameter  $\delta_p$  within the range of zero to about 8.5 g, and
- a hydrogen bond solubility parameter  $\delta_h$ , within the range of zero to about 7.0 g.

Claim 2 (original)      A contact medium as recited in claim 1, wherein the continuous phase also has a surface tension between about 20 and 70 dynes/cm and an interfacial tension with in-service water between zero and about 30 dynes/cm.

Claim 3 (cancelled)

Claim 4 (original)      A contact medium as recited in claim 1, wherein the continuous phase has a nonpolar solubility parameter  $\delta_n$  within the range of about 6.5 to about 8.5 g-cal/mole, a polar solubility parameter  $\delta_p$  within the range of about 2.5 to about 7.5 g-cal/mole, and a hydrogen bond solubility parameter  $\delta_h$ , within the range of about 0.7 to about 5.0 g cal/mole.

Claim 5 (original)      A contact medium as recited in claim 1, wherein the continuous phase has a nonpolar solubility parameter  $\delta_n$  within the range of about 6.5 to about 8.5 g-cal/mole, a polar

solubility parameter  $\delta_p$  within the range of about 3.0 to about 5.5 g-cal/mole, and a hydrogen bond solubility parameter  $\delta_b$ , within the range of about 1.0 to about 4.0 g cal/mole.

Claim 6 (original) A contact medium as recited in claim 1, wherein the continuous phase has a surface tension between about 30 and about 68 dynes/cm, and an interfacial tension with in-service water between zero and about 23 dynes/cm.

Claim 7 (original) A contact medium as recited in claim 4, wherein the continuous phase has a surface tension between about 30 and about 68 dynes/cm, and an interfacial tension with in-service water between zero and about 23 dynes/cm.

Claim 8 (original) A contact medium as recited in claim 5, wherein the continuous phase has a surface tension between about 30 and about 68 dynes/cm, and an interfacial tension with in-service water between zero and about 23 dynes/cm.

Claim 9 (original) A contact medium as recited in claim 1, wherein the continuous phase has a surface tension between about 40 and about 68 dynes/cm, and an interfacial tension with in-service water between zero and about 15 dynes/cm.

Claim 10 (original) A contact medium as recited in claim 4, wherein the continuous phase has a surface tension between about 40 and about 68 dynes/cm, and an interfacial tension with in-service water between zero and about 15 dynes/cm.

Claim 11 (original) A contact medium as recited in claim 5, wherein the continuous phase has a surface tension between about 40 and about 68 dynes/cm, and an interfacial tension with in-service water between zero and about 15 dynes/cm.

Claim 12 (original) A contact medium as recited in claim 1, further comprising a discontinuous phase dispersed in the continuous phase.

Claim 13 (original) A contact medium as recited in claim 12, wherein the discontinuous phase

further comprises fillers, pigments or extenders or combinations thereof.

Claim 14 (original) A contact medium as recited in claim 13, wherein the continuous phase and the discontinuous phase together make up between three and about sixty percent of the total weight of the contact media when dry.

Claim 15 (original) A contact medium as recited in claim 13, wherein the continuous phase and the discontinuous phase together make up between five and about twenty-five percent of the total weight of the contact media when dry.

Claim 16 (original) A contact medium as recited in claim 13, wherein the continuous phase and the discontinuous phase together make up between about ten and about fifteen percent of the total weight of the contact media when dry.

Claim 17 (Currently Amended) A water/air contact medium for use in an evaporative cooler, comprising

a fibrous material impregnated with a compound having a continuous phase for inhibiting deposition of one or more dissolved or particulate contaminants in the water onto the medium, the continuous phase ~~comprises further comprising an amorphous polymer or combination of one or more non-chlorinated cationic~~ amorphous polymers, wherein the continuous phase has an overall cationic charge and the following properties:

- a) a nonpolar solubility parameter  $\delta_n$  within the range of about 6.5 to about 8.5 g-cal/mole;
- b) a polar solubility parameter  $\delta_p$  within the range of zero to about 8.5 g-cal/mole;
- c) a hydrogen bond solubility parameter  $\delta_h$  within the range of zero to about 7.0 g-cal/mole;
- d) a surface tension ranging between about 20 and 70 dynes/cm; and
- e) an interfacial tension with in-service water ranging between zero and about 30 dynes/cm.

Claim 18 (cancelled)

Claim 19 (original) A contact medium as recited in claim 17, wherein the continuous phase has a nonpolar solubility parameter  $\delta_n$  within the range of about 6.5 to about 8.5 g- cal/mole, a polar solubility parameter  $\delta_p$  within the range of about 2.5 to about 7.5 g- cal/mole, and a hydrogen bond solubility parameter  $\delta_h$  within the range of about 0.7 to about 5.0 g cal/mole.

Claim 20 (original) A contact medium as recited in claim 17, wherein the continuous phase has a nonpolar solubility parameter  $\delta_n$  within the range of about 6.5 to about 8.5 g- cal/mole, a polar solubility parameter  $\delta_p$  within the range of about 3.0 to about 5.5 g- cal/mole, and a hydrogen bond solubility parameter  $\delta_h$  within the range of about 1.0 to about 4.0 g cal/mole.

Claim 21 (original) A contact medium as recited in claim 17, wherein the continuous phase has a surface tension between about 30 and about 68 dynes/cm, and an interfacial tension with in-service water between zero and about 23 dynes/cm.

Claim 22 (original) A contact medium as recited in claim 17, wherein the continuous phase has a surface tension between about 40 and about 68 dynes/cm, and an interfacial tension with in-service water between zero and about 15 dynes/cm.

Claim 23 (original) A contact medium as recited in claim 17, further comprising a discontinuous phase dispersed in the continuous phase.

Claim 24 (original) A contact medium as recited in claim 23, wherein the discontinuous phase further comprises fillers, pigments or extenders or combinations thereof.

Claim 25 (Currently Amended) A water/air contact medium for use in an evaporative cooler, comprising:

- a) a fibrous material;
- b) an intermediate layer comprising a polymer or unsuitable material deposited on the fibrous material; and

c) ~~an impregnating compound~~ a non-chlorinated continuous phase comprising one or more non-chlorinated amorphous cationic polymers deposited on and covering the intermediate layer; ~~the impregnating compound having a continuous phase~~ for inhibiting deposition of one or more dissolved or particulate contaminants ~~in the water~~ onto the medium, ~~the continuous phase further comprising an amorphous polymer or combination of one or more amorphous polymers,~~ wherein ~~the~~ a non-chlorinated continuous phase has an overall cationic charge and the following properties:

- i) a nonpolar solubility parameter  $\delta_n$  within the range of about 6.5 to about 8.8 g-cal/mole;
- ii) a polar solubility parameter  $\delta_p$  within the range of zero to about 8.5 g-cal/mole;
- iii) a hydrogen bond solubility parameter  $\delta_h$ , within the range of zero to about 7.0 g-cal/mole.;
- iv) a surface tension ranging between about 20 and 70 dynes/cm; and
- v) an interfacial tension with in-service water ranging between zero and about 30 dynes/cm.

Claim 26 (Currently Amended)      A contact medium as recited in claim 1, wherein the ~~amorphous polymer or combination of~~ one or more non-chlorinated amorphous cationic polymers of the non-chlorinated continuous phase is selected from the group consisting of epoxies, polyacetals, polyacrylates, polyacrylics, polyacrylamides, polyalkylamides, polyamides, polyamideimides, polycarbonates, polycarboxylicdihydric esters, polyimides, polyesters, polycellulose acetate butyrates, polydiglycidyletheralkyl/aryldiols, polysilicones, polysiloxanes, polysiloxides, polystyrenes, polysucrose acetate butyrates, polysulfonamides, polysulfones, polyurethanes, polyvinylacetals, and polyvinylhalogens.

Claim 27 (Currently Amended)      A contact medium as recited in claim 17, wherein the ~~amorphous polymer or combination of~~ one or more non-chlorinated amorphous cationic polymers of the non-chlorinated continuous phase is selected from the group consisting of epoxies, polyacetals, polyacrylates, polyacrylics, polyacrylamides, polyalkylamides, polyamides, polyamideimides, polycarbonates, polycarboxylicdihydric esters, polyimides, polyesters, polycellulose acetate butyrates, polydiglycidyletheralkyl/aryldiols, polysilicones, polysiloxanes,

polysiloxides, polystyrenes, polysucrose acetate butyrates, polysulfonamides, polysulfones, polyurethanes, polyvinylacetals, and polyvinylhalogens.

Claim 28 (Currently Amended) A contact medium as recited in claim 25, wherein the ~~amorphous polymer or combination of one or more~~ non-chlorinated amorphous cationic polymers of the non-chlorinated continuous phase is selected from the group consisting of epoxies, polyacetals, polyacrylates, polyacrylics, polyacrylamides, polyalkylamides, polyamides, polyamideimides, polycarbonates, polycarboxylicdihydric esters, polyimides, polyesters, polycellulose acetate butyrates, polydiglycidyletheralkyl/aryldiols, polysilicones, polysiloxanes, polysiloxides, polystyrenes, polysucrose acetate butyrates, polysulfonamides, polysulfones, polyurethanes, polyvinylacetals, and polyvinylhalogens.

Claim 29 (Currently Amended) A water-air contact medium for use in an evaporative cooler to inhibiting deposition of one or more dissolved or particulate contaminants comprising:  
a fibrous material impregnated with a continuous phase for inhibiting deposition of one or more contaminants in the water onto the medium comprising one or more non-chlorinated cationic polymers with a nonpolar solubility parameter  $\delta_n$  between about 6.5 and about 8.5 g, a polar solubility parameter  $\delta_p$  between about 0.0 and about 8.5 g, a hydrogen bond solubility parameter  $\delta_h$ , between about 0.0 and about 7.0 g, a surface tension ranging between about 20 and 70 dynes/cm and an interfacial tension with in-service water between about 0.0 and about 30 dynes/cm selected from epoxies, polyacetals, polyacrylates, polyacrylics, polyacrylamides, polyalkylamides, polyamides, polyamideimides, polycarbonates, polycarboxylicdihydric esters, polyimides, polyesters, polycellulose acetate butyrates, polydiglycidyletheralkyl/aryldiols, polysilicones, polysiloxanes, polysiloxides, polystyrenes, polysucrose acetate butyrates, polysulfonamides, polysulfones, polyurethanes, polyvinylacetals, and polyvinylhalogens.

Claim 30 (Currently Amended) A contact medium for use in a liquid-air evaporative cooler comprising:

a fibrous material impregnated with a continuous phase ~~optionally~~ comprising a discontinuous phase dispersed at least partially within the continuous phase for inhibiting deposition of one or more components in a liquid onto the medium, wherein the continuous

phase comprises one or more non-chlorinated amorphous cationic polymers having:

- a) a nonpolar solubility parameter  $\delta_n$  within the range of about 6.5 to about 8.5 g-cal/mole;
- b) a polar solubility parameter  $\delta_p$  within the range of zero to about 8.5 g-cal/mole;
- c) a hydrogen bond solubility parameter  $\delta_h$  within the range of zero to about 7.0 g-cal/mole;
- d) a surface tension ranging between about 20 and 70 dynes/cm; and
- e) an interfacial tension with in-service water ranging between zero and

about 30 dynes/cm and wherein the discontinuous phase comprises one or more components to produce a specific gravity of between about 0.8 and about 3.5 at about 40% and about 1% of an impregnate composition respectively.

Claim 31 (Currently Amended)      The contact medium as recited in claim 30, wherein the one or more non-chlorinated amorphous cationic polymers are selected from epoxies, polyacetals, polyacrylates, polyacrylics, polyacrylamides, polyalkylamides, polyamides, polyamideimides, polycarbonates, polycarboxylic dihydric esters, polyimides, polyesters, polycellulose acetate butyrates, polydiglycidyletheralkyl/aryldiols, polysilicones, polysiloxanes, polysiloxides, polystyrenes, polysucrose acetate butyrates, polysulfonamides, polysulfones, polyurethanes, polyvinylacetals, polyvinylhalogens, or mixtures thereof.

Claim 32 (Currently Amended)      The contact medium as recited in claim 31, further comprising the one or more components are selected from a dialkyl/aryl phthalates, dialkyl/aryl adipates, dialkyl/aryl maleates, dialkyl/aryl succinates, dialkyl/aryl sebacates, polyalkyl/aryl phosphates, polyesters, condensation polymers, resins, one or more metallic oxides, a titanium oxide, an antimony oxide, a zinc oxide, a cuprous oxide, one or more cationic metaborates, a boric acid, one or more cationic carbonates, one or more alkylaryl chlorides, one or more arylmetalosalicilates, one or more arylmetaloolcates, one or more quinolinates, one or more alkylarylchlorophenols or mixtures thereof.